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# PUBLIC HEALTH AND HUMAN SERVICES

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# MEMORANDUM

**TO:** **All licensed pool, spa, and other water feature operators, City-County Health Departments, and other interested parties.**

**FROM:** **Montana Department of Public Health & Human Services, Food & Consumer Safety Section**

**DATE:** **November 13, 2008, updated December 23, 2008**

**RE:** **Compliance with the federal law known as "the Virginia Graeme Baker Pool and Spa Safety Act"**

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As some of you may be aware, on December 19, 2007 The Virginia Graeme Baker Pool & Spa Safety Act was signed into federal law by President Bush. The law requires full compliance on December 19, 2008. This law requires safety features to ensure that entrapment accidents caused by unsafe pool drains, drain covers and other pool components will not occur in the future.

The law is being interpreted and enforced by the U.S. Consumer Product Safety Commission (CPSC). The Department will post ***the law, the CPSC interpretation, and the CPSC guide to compliance*** on the Department's pool website, www.fcss.mt.gov

Please check the website frequently for additional interpretations as they become available. Below are some interpretations from the Department.

## QUESTION:

What impact does the ***Virginia Graeme Baker Pool and Spa Safety Act*** have on public swimming pools and spas in Montana?

## BACKGROUND:

President Bush signed the Virginia Graeme Baker Pool & Spa Safety Act into law on December 19, 2007. The law made some sweeping changes in how swimming pools will provide main drain entrapment safety in the future. The law mandates that all public pools provide entrapment protection for their main drains that meet federal guidelines. The law mandates these changes be made by December 19, 2008.

The law addresses standards for main drain cover manufacture, standards for single main drain pools, and standards for pools with more than one main drain or with unblockable main drains. This document is meant as guidance for public pool operators, service companies, and others to use to make changes in compliance with the new law while coordinating with existing and new Montana rules.

## DEFINITIONS:

**Drain Covers** – Main drain covers that have a listing for compliance with ANSI/AMSE A112.19.8 (2007) from a third party listing agency. This listing is marked on the cover. To date, only a very few covers are listed in compliance with this standard, but manufacturers are rapidly moving to respond to the need.

**Main Drains** – Suction fittings on the bottom or side of the pool that direct water back to a pump. They are normally located in the deepest part of the pool or spa.

**Multiple Main Drains** – Consist of at least two fully submerged suction outlets per pump. The drain covers must be centered at least 3 feet apart. Multiple pumps may share the drains as long as the velocity through the fitting or return piping is not exceeded. Each drain must handle at least 100 % of the total recirculation flow through the pump(s). When more than two fittings are provided, each fitting's flow will be the: [ ("total recirculation flow" x 2) / "the number of main drain fittings"].

**Single Main Drain** – Means that only a single main drain suction fitting is provided for a pump, regardless of whether a skimmer is provided. Multiple fittings less than 3 feet apart are considered a single main drain.

**Suction Fittings** – Fittings completely submerged in the water on either the bottom or side of the pool that collect the water so it can be returned to the pump. For purposes of this document, skimmers and gutters are not considered suction fittings.

## ANTI-ENTRAPMENT SYSTEMS:

**Unblockable Drain** – Means a drain that is of a size or shape that a body cannot sufficiently block to create a suction entrapment hazard. The CPSC goes further to state it must exceed the dimensions of the ANSI/ASME A112.19.8 (2007) test procedures and would have a minimum dimension larger than 18" x 23", the size of the shoulder to waist measurement of a 99th percentile adult male. Un unblockable drain may also have a diagonal measurement of 29" or greater.

**SVRS – "Safety Vacuum Release System"** – means a system that ceases the operation of the pump, reverses the recirculation flow, or otherwise provides a vacuum release at the suction outlet when there is a blockage. Systems must be designed and tested to ANSI/ASME standard A122.19.17 or the ANSI ASTM standard F2387 and be listed as such by a third party certifier. There are currently some systems on the CPSC website that are approved SVRS systems.

**Suction – Limiting Vent System** – Means a suction limiting vent system with a tamper-resistant atmospheric opening, also called an "atmospheric vent." These require certification by a design professional to make sure they will function.

**Gravity Drain System** – Means a system that utilizes a collector or surge tank to collect the water from the pool via gravity flow piping before it is drawn into the recirculation pump. The suction of the water moving to the surge tank should not be sufficient to entrap a body to the main drain fitting. Special or unusual designs where the drop into the surge tank produces significant suction head may require further protection.

**Automatic Pump Shut-off System** – Would be a device that detects a drain blockage and can shut-off the pump system. Some SVRS systems may meet this definition. This is not a manually operated emergency shut-off switch as required by the National Electrical Code. Currently these systems would have to meet the SVRS standards for performance criteria.

**Drain Disablement** – Means permanently disabling the main drain as a suction outlet. This can be accomplished in a variety of ways, but the disablement must be permanent in nature.

**Other System** – Means any other system that is determined by the CPSC commission to be equally effective as those above at preventing entrapment, risk of injury or death

# INTERPRETATION:

This interpretation is an attempt by the Department to interpret some of the provisions of the Virginia Graeme Baker Pool and Spa Safety Act. ***It is not to be considered a definitive interpretation as this responsibility rests with the Federal Consumer Product Safety Commission (CPSC).*** These guidelines should allow pool operators to proceed with the federally mandated corrections for entrapment while still being in compliance with the Montana Rules.

## Issues:

As of this writing, the Department knows of only a limited number of drain grates that comply with ANSI / ASME A112.19.8 (2007). Many drain renovations will have to wait until additional covers, made to fit the sumps in a particular pool, become certified. This is occurring rapidly at this point.

A current list of compliant drain cover and SVRS systems can be found at this website:

http://www.cpsc.gov/businfo/draincman.html

## Single Main Drain Pools:

A single main drain or suction fitting is one where a pump is attached directly to only that one submerged suction fitting. Skimmers are not considered an additional attachment.
A single main drain pool can be brought into compliance with the federal law by:
1.) Adding a second main drain with a connecting pipe so the return line to the pump is at the hydraulic center between the fittings and the fittings are at least 3 feet apart measured from their centers.
2.) Disabling the main drain, provided that there are other methods to return the water to the pump (skimmers). The disablement must be permanent in nature. ***(Please note that if you disable the main drain, you must still maintain the appropriate turnover required for your pool type. This may not always be possible.)***
3.) Install an unblockable drain fitting larger than 18" x 23" in size, or 29" or greater diagonal. This installation must provide a suitable sump area to transport the water.
4.) Install a main drain cover that is third party listed as compliant with ANSI / ASME A112.19.8 (2007). This cover must be marked with the logo of the testing agency and the standard to which the cover is tested. The main drain fitting must have enough open area to maintain a velocity less than 1.5 feet per second through the fitting. Then one of the following must also be present.
A.) An SVRS installed per the manufacturer's installation instructions. They must be listed as meeting ASTM/ANSI standard F2387 or ANSI ASME standard A112.19.17. These may not be installed in pools with hydrostatic relief valves. There is also a question of whether they will function on pumps with skimmers piped into the suction line:

NOTE: ***Many SVRS devices will not function properly in pools with properly installed hydrostatic relief valves***. Many pools in Montana have hydrostatic relief valves in the main drain sump to protect the pool from floating in high ground water conditions. Plugging, capping or otherwise disabling the hydrostatic relief valves can cause the pool to float out of the ground. Once raised, the pool is usually considered a total loss.

B.) A "suction-limiting vent system." These devices are installed during construction of a new pool. There are not voluntary standards for the design of these. To install a vent system, a qualified engineer must design it and receive approval from the Department.
C.) A "gravity drainage system," where the water runs by gravity into a separate water storage vessel such as a collector tank, surge tank or surge pit. Standards for these are found in the new Montana rules for Public Swimming Pools:
D.) An "automatic pump shutoff system." Currently there are no standards for these types of devices. Some SVRS devices, by function, would meet this definition. They may not work if the pool had a hydrostatic relief valve in the main drain sump, and thus cannot be installed on pools with hydrostatic relief valves (See Note above.). There is a question as to whether they will function when the pump is also tied to a skimmer line;
E.) A system that in the judgment of the Department provides equivalent protection.
**F.) Water slide suction systems also need to meet the requirements of the Pool & Spa Safety Act.**

# Entrapment Protection/Prevention Devices

The provisions of this section apply to the use of entrapment protection/prevention devices on residential swimming pools and spas. Single suction outlet systems, such as vacuum cleaner systems or multiple suction outlet systems that can be isolated by valves or otherwise, shall be protected against user entrapment. The devices/systems described are intended to provide protection against potential drowning or near-drowning due to suction entrapment.

1. Pools or spas constructed on or after December 20, 2008, shall use:

   (A) No submerged suction outlets, a gravity drainage system with ASME/ANSI cover(s), or one or more unblockable outlets; or

   (B) A multiple main drain system without isolation capability with suction outlet covers that meet ASME/ANSI A112.19.8 *Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs* and either:

      (i) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 *Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems* and/or ASTM F2387 *Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming Pools, Spas and Hot Tubs* or

      (ii) A properly designed and tested suction-limiting vent system or

      (iii) An automatic pump shut-off system.

2. Pools and spas constructed prior to December 20, 2008, with a single submerged suction outlet shall use a suction outlet cover that meets ASME/ANSI A112.19.8-2007 and either:

   (A) A multiple main drain system without isolation capability, or

   (B) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 and/or ASTM F2387, or

   (C) A properly designed and tested suction-limiting vent system, or

   (D) An automatic pump shut-off system, or

   (E) Submerged outlets shall be disabled, or

   (F) Suction outlets shall be reconfigured into return inlets.

3. **Pool Cleaner Fittings.** Where provided, vacuum or pressure cleaner fitting(s) shall be located in an accessible position(s) at least 6 inches (152 mm) and not greater than 12 inches (305 mm) below the minimum operational water level or as an attachment to the skimmer(s). Side wall-mounted vacuum fittings shall meet the requirements of the International Association of Plumbing and Mechanical Officials pool standard, IAPMO SPS-4 *Special Use Suction Fittings for Swimming Pools, Spas and Hot Tubs* (for suction side automatic swimming pool cleaners).

**MONTANA RECOMMENDATIONS:**

**Keep up with what is current at the CPSC website:**

**http://www.cpsc.gov/whatsnew.html#pool (scroll down to pools…)**

## Pools with Multiple Main Drains:

For pools with more than one main drain fitting connected to each pump, the main change will be to replace the existing main drain grate with a new grate compliant with the requirements of ANSI / ASME A112.19.8 (2007), listed as compliant by a recognized third party testing agency. The cover will have the logo of the listing agency and the standard to which it was tested. The main drain fitting must have enough open area to allow 100% flow through each drain fitting at less than 1.5 feet per second water velocity. When there are more than two fittings, all tied together, each fitting must accommodate a ratio of flow equal of 200 % of the flow rate through the combined fittings.

## RECAP

1. Your pool, spa, or other water feature must have ***dual main drains*** that meet ASTM A112.19.8 – 2007 standards. This should be embossed on the outside cover. Most covers will need to be replaced.
2. The drains must be more than 36" apart, and no more than 6 feet or 72" apart.

If you don't meet #1 or #2 above, then you must have an alternate system in place, as listed in the Act, or as noted above. If you choose the option of closing the main drain(s), the pool must meet the turnover requirements for the pool without using main drains as part of the circulation system. Very few pools can meet the turnover requirements without the main drain.

Some equipment manufacturers are making pumps that can be installed that meet the requirements of the Act, so you could replace the pump.

Please be aware that some drain covers cannot be retrofitted to your existing sumps, especially if you have a custom sized sump, or a non-standard cover.

Spas with dual main drains less than 36" apart, even if located on different planes, do not meet the safety requirements, and would require one of the other options.

**Spas have two suction systems generally, one for circulation and one for the jet system. Each must be protected with an SVRS or other system.**

If you have any doubts, please contact the Department. If you are replacing the sumps, or covers, please make sure that they will meet the requirements of the Act before you install the equipment.

***Have the contractors who do any work for you certify that the work will comply with the requirements of the Virginia Graeme Baker Pool & Spa Safety Act.***

Sump replacements, pump changes, plumbing changes, and other construction projects should receive Department review and approval.

**Finally…**

**For your legal protection, document all actions that you take regarding upgrading your pool to meet the new requirements. Documentation might include writing down when you talked to a pool contractor, when they promised you they could upgrade your system, copies of invoices for work completed, pictures with rulers of your new covers etc. if you empty your pool to complete the work, and any other steps you may take to come into compliance with the law. It is in your best interest to be working diligently toward compliance as soon as possible for your particular operation.**

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